

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested.

I. Status of the Claims

Claims 1-16, 18-20, 69-75 and 77-97 are pending in this application, of which 69-75, 77-82, 85, 86, 89 and 93 have been withdrawn from consideration pursuant to a restriction requirement. Claim 1 has been amended by way of this response.

Claim 1 has been amended to call for covalent coupling the target oligonucleotide with the identifier oligonucleotide and to provide proper antecedent basis in the mixing step. Support for this amendment is found throughout the specification, for example at page 70, line 16 to page 71, line 3, and in claim 15 as originally filed.

No new matter has been added by way of this response.

II. Objections to the Specification

The Examiner has objected to some of the amendments made to the specification made on April 28, 2010 because they allegedly introduce new matter. The rejection is respectfully traversed.

Applicants respectfully submit that the amendments to the specification made on April 28, 2010 were not intended to delete any subject matter from the present application. Instead, those amendments were only made in order to move the brief and detailed descriptions of the drawings to the appropriate place in the application. Specifically, applicants had deleted the subject matter appearing from page 122, line 22 to page 119, line 17 (recited in the 4/28/2010 amendment as "P112, L22 to 119, L17") and added the identical subject matter back to the specification at page 8, line 23 (i.e., the brief and detailed descriptions of Figures 1-10 were simply moved). Additionally, applicants deleted the brief description of Figures 11-13 from page 43, lines 17-21 and relocated this text to the new brief description of the figures beginning at page 8, line 23.

Applicants respectfully submit that the language “P112, L22 to 119, L17 and P43, L17-23” appearing in the Amendments of the Specification section of the April 28, 2010 was misinterpreted by the Examiner. The statements above are meant to clarify what was intended by applicants’ prior amendment. Moreover, in order to rectify any ambiguity in applicants’ prior response, the amendment to “delete the paragraphs at P112, L22 to 119, L17 and at P43, L 17-23” has been withdrawn. Those amendments are replaced with the following: (1) deletion of the paragraphs starting at page 112, line 22 and ending at page 119, line 17, and (2) deletion of the paragraphs starting at page 43, line 17 and ending at page 43, line 23.

These changes were discussed with the Examiner by way of a teleconference with applicants’ representative Andrew Larsen, where the current course of action was agreed upon by the parties.

The Examiner has objected to the specification for the following additional reasons, which are addressed in turn:

- (1) The brief description of figure 11 only refers to figure 11 rather than figures 11A and 11B. Appropriate correction has been made by way of an amendment to the specification above.
- (2) The section entitled “Detailed description of Figures 1-10” has been duplicated by way of applicants’ amendment of April 28, 2010. This has been corrected by applicants’ withdrawal of the prior amendment to “delete the paragraphs at P112, L22 to 119, L17 and at P43, L 17-23” and replacement with an amendment to “delete the paragraphs starting at page 112, line 22 and ending at page 119, line 17.”
- (3) Example 3 appears on pages 43-46 as opposed to following Example 2 on page 126. Appropriate correction has been made by an amendment to move the text associated with Example 3 to page 126 (i.e., after Example 2).

- (4) Applicants' amendment of April 28, 2010 destroys the grammatical congruence in the second paragraph on page 112 of the specification. This has been corrected by applicants' withdrawal of the prior amendment to "delete the paragraphs at P112, L22 to 119, L17 and at P43, L 17-23" and replacement with an amendment to "delete the paragraphs starting at page 112, line 22 and ending at page 119, line 17."

In view of the above amendments and remarks, it is respectfully submitted that all objections to the specification have been addressed and overcome.

III. Rejections under 35 USC § 102 (Anticipation)

Claims 1-16, 18-20, 83, 84, 88, and 95-97 have been rejected for anticipation by Liu et al. (US 2003/0113738; "Liu"). The Examiner asserts that Liu describes a method for synthesizing molecule libraries with a nucleic acid template which involves providing a target complex comprising a molecular target associated with a target oligonucleotide, and providing a library of bifunctional complexes, where each complex contains a display molecule attached to an identifier oligonucleotide encoding the display molecule. The Examiner also contends that Liu teaches mixing the target complexes with the library such that a covalent bond (i.e., a nucleophilic-electrophilic interaction) may form between a target complex and a library member. The Examiner notes that such covalent binding in Liu is in addition to an indirect coupling arising from the binding of the display molecule to the target. Finally, the Examiner asserts that Liu discloses identification of the bound display molecule and/or the molecular target by gel electrophoresis.

In response, and without conceding the validity of the rejection, claim 1 has been amended to call for "covalently coupling the target oligonucleotide[[.]] of a target complex bound to a bifunctional complex, with the identifier oligonucleotide of said bifunctional complex."

According to the Examiner, Figure 9 of Liu discloses “bifunctional complexes [which] may bind to one or more of said target complexes, by virtue of nucleophilic-electrophilic interaction between the display molecule ... and the target, said coupling being in addition to the indirect coupling. [sic] resulting from said binding of the display molecule to the target.” (See 3/31/2011 Office Action at page 8). Applicants respectfully submit that this property allegedly described in Liu does not read on the currently pending claims. For one, Figure 9 of Liu is alleged to describe a covalent link between the *display molecule and the target*, but this is not what is called for in the claims. Instead, claim 1 as amended and all claims depending therefrom require “covalently coupling the *target oligonucleotide ... with the identifier oligonucleotide.*” It is respectfully submitted that this type covalent coupling is not found in Figure 9 of Liu, which only shows a non-covalent (i.e., indirect) hybridization between two oligonucleotides. As the only covalent coupling described in Figure 9 of Liu involves a display molecule part of a complex (i.e., the nucleophilic-electrophilic interaction), and not the covalent coupling of a target oligonucleotide and an identifier nucleotide, Liu does not meet this limitation of the claims.

Additionally, claim 1 as amended and the claims depending therefrom require an “indirect coupling resulting from said binding of the display molecule to the target.” This indirect coupling is said to be “by virtue of interaction between the display molecule of said bifunctional complex and the target of said target complex.” Applicants, respectfully submit that the display molecule described in Figure 9 of Liu is in no way indirectly coupled to a target. Instead, and as argued by the Examiner, the display molecule of Liu participates in a nucleophilic-electrophilic interaction. Applicants respectfully submit that such an interaction gives rise to a covalent bond and is therefore not indirect. Accordingly, Liu also does not meet this limitation of the claim.

Based on the above amendments and remarks, the applicants respectfully submit that Liu does not disclose each and every limitation of the presently rejected claims, and those claims are therefore not anticipated by Liu. Withdrawal of the present rejection is respectfully requested.

IV. Rejections under 35 USC § 103 (Obviousness)

Claims 1-16, 18-20, 83, 84, 88, 95-97 and 87, 90, 91, 92 and 94 have been rejected for obviousness over Liu in view of Pedersen (US 2006/0121470; "Pedersen") as evidenced by Barany (1991 PNAS 88:189-193). This rejection is respectfully traversed.

The Examiner concedes that Liu, among other things, does not teach enzymatic means to ligate the target oligonucleotide and the display oligonucleotide covalently. The Examiner argues that it would have been obvious to use enzyme-catalyzed ligation in view of Pedersen. However, as shown below, Pedersen is not prior art against the present application, and consequently the rejection must be withdrawn.

Pedersen is a U.S. national phase application arising from PCT Appl. No. PCT/DK03/00516, which was filed on Jul. 30, 2003 and was published February 12, 2004. The February 12, 2004 publication date of the Pedersen PCT application occurs after the present application's priority dates of October 8, 2003, September 22, 2003 and September 18, 2003. Accordingly, Pedersen is too late to be prior art under Section 102(a) and is only potentially available as prior art under Section 102(e).

However, under 35 USC 103(c)(1):

Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.

(35 USC 103(c)(1))

Pursuant to MPEP 706.02(1)(2), a Counsel's statement of common ownership under 103(c)(1) is sufficient to disqualify Pedersen as a 102(e)/103, 102(f)/103, 102(g)/103 reference. Since the

rejection was for obviousness, not anticipation, we assume that the Examiner did not consider Pedersen to be anticipatory.

Statement of Common Ownership Under 103(c)(1)

Counsel hereby states as applicants' representative, upon information and belief, that the applications in question (i.e., the instant application and its priority applications, and Pedersen and the Pedersen PCT application) were owned by, or subject to an obligation of assignment to, the same person at the time the invention was made.

The common owner is NuEvolution A/S. Counsel's 103(c) statement is made in reliance upon statements given to him by NuEvolution's European counsel regarding the common ownership of all of the aforementioned applications at the time the present invention was made. (Counsel was not involved in the drafting of the applications in question and has no personal knowledge of the assignment obligations that existed at that time).

Accordingly, applicants respectfully submit that Pedersen is disqualified as a reference under Section 103(c). Withdrawal of the present obviousness rejection in view of Pedersen is therefore respectfully requested.

V. Rejections under 35 USC § 112 (Indefiniteness)

Claims 1-16, 18-20, 83, 84, 87, 88, 90-92, and 94-97 are rejected for indefiniteness. The Examiner asserts that the antecedent basis for the mixing step of claim 1 at line 10 recites vague and indefinite language in "said target complexes in" because the providing step (line 4) is for one or more. The Examiner is not sure whether there is a single target complex or many.

In response, claim 1 has been amended to call for "mixing said one or more target complexes with said library of bifunctional complexes," Applicants respectfully submit that this amendment clears up any ambiguity regarding the mixing step in that claim and its antecedent basis

in the providing step. Accordingly, the present rejection for indefiniteness is believed to be addressed and overcome.

CONCLUSION

Applicants respectfully submit that this application is now in condition for allowance. Reconsideration and prompt allowance of which are respectfully requested.

The Examiner is invited to contact the undersigned at (212) 223-6658 if any additional information or assistance is required.

Applicants believe that no additional fee is due in connection with the filing of this response. If any additional fee is due, or overpayment made, with regard to this response, Applicants authorize the Director to charge any such fee, and credit any overpayment, to Deposit Account No. 13- 2725.

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Respectfully submitted,

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